

We Claim:

1. Supervisor apparatus for running an integrated operation on a plurality of applications distributed on networked stations, the apparatus comprising:

- (a) an evaluating unit for receiving and evaluating output from at least two stations including a first station and at least one other station, and
- (b) an operating unit for sending selected commands to a first application running on said first station, said commands being selectable according to rules, said rules specifying a dependency of a command to be sent to said first station upon an evaluation of output from said at least one other station.

2. Supervisor apparatus according to claim 1, where said rules are embodied in a computer program.

3. Supervisor apparatus according to claim 1, where said rules are scripts.

4. Supervisor apparatus according to claim 1, where said rules comprise a synchronization point, said synchronization point comprising

functionality to require unidirectional temporal dependency of a command to one station upon received outputs from said other station.

5. Supervisor apparatus according to claim 1, where said operating unit is a process running on said first station.

6. Supervisor apparatus according to claim 1, where said operating unit is a process running on a station other than said first station.

7. Supervisor apparatus according to claim 1, wherein said apparatus is designed and constructed for sending commands to a plurality of applications running on a plurality of stations.

8. Supervisor apparatus according to claim 1, wherein said apparatus is designed and constructed for testing said applications.

9. Supervisor apparatus according to claim 8, wherein said apparatus is for functional testing of said applications.

10. Supervisor apparatus according to claim 8, wherein said apparatus is for regressive testing of said applications.

11. Supervisor apparatus according to claim 1, wherein said apparatus comprises a testing unit for testing said integrated operation.

12. Supervisor apparatus according to claim 11, wherein said apparatus comprises a functional testing unit for functional testing of said integrated operation.

13. Supervisor apparatus according to claim 11, wherein said apparatus comprises a regressive testing unit for regressive testing of said integrated operation.

14. Supervisor apparatus according to claim 1, wherein said integrated operation is a test operation.

15. Supervisor apparatus according to claim 14, wherein said integrated test comprises functional tests on said applications.

16. Supervisor apparatus according to claim 14, wherein said integrated test comprises regressive tests on said applications.

17. Supervisor apparatus according to claim 14, wherein said distributed applications are test applications operative to test locally installed test subject applications.

18. Supervisor apparatus according to claim 17, wherein said distributed applications comprise at least one of a group comprising functional testing ability and regressive testing ability.

19. Supervisor apparatus according to claim 1, wherein said rules comprise scripts for interacting with a plurality of applications.

20. Supervisor apparatus according to claim 19, wherein said supervisor apparatus is operable to freeze running of said scripts at at least one of said applications until receipt of a predetermined output from a predetermined other of said applications.

21. Supervisor apparatus according to claim 19, wherein said supervisor apparatus is operable to freeze running of said scripts at at least one of said applications until receipt of an indication that a predetermined other of said applications is ready to carry out a given operation.

22. Supervisor apparatus according to claim 19, wherein said interaction is a test.

23. Supervisor apparatus according to claim 1, comprising a synchronization point definer operable to define synchronization points in said

integrated operation, said synchronization points being usable at a station to temporally affect operation at said station.

24. Supervisor apparatus according to claim 23, said synchronization point definer being operable to include, with said synchronization point, a definition comprising a list of at least one station to use said synchronization point.

25. Supervisor apparatus according to claim 23, said synchronization point definer being operable to include, with said synchronization point, a definition comprising a list of at least one station to respond thereto in a first way and a list of at least one station to respond thereto in a second way.

26. Supervisor apparatus according to claim 23, said synchronization point definer being operable to include, with said synchronization point, a definition comprising at least two events from evaluations made by said evaluator.

27. Supervisor apparatus according to claim 26, wherein at least one of said two events is an evaluation of output from said first station and at least one of said two events is an evaluation of output from said second station.

28. Supervisor apparatus according to claim 26, said synchronization point definer being operable to include, with said synchronization point definition, a list of at least one station to react to a first of said events and at least one station to react to at least a second of said events.

29. Supervisor apparatus according to claim 26, wherein said first event comprises an indication of successful sending of data from a first station and said second event comprises an indication of successful receipt of said data at a second station.

30. Supervisor apparatus according to claim 26, wherein said first event comprises an indication of successful sending of data from a first station and said second event comprises an indication of unsuccessful receipt of said data at a second station.

31. Supervisor apparatus according to claim 23, wherein said synchronization point definer is operable to define, for at least one station, a maximum time delay for waiting for an event associated with said synchronization point.

32. Supervisor apparatus according to claim 31, wherein said synchronization point definer is operable to define different maximum time delays for different stations.

33. Supervisor apparatus according to claim 1, further comprising an event occurrence notifier operable to inform one of said stations about occurrence of an event at another of said stations.

34. Supervisor apparatus according to claim 33, being operable to include supervisor generated data regarding said occurrence.

35. Supervisor apparatus according to claim 33, being operable to include station generated data regarding said occurrence.

36. Supervisor apparatus according to claim 1, wherein said evaluating unit is operable for evaluating output from at least two of said stations together.

37. A system for running an integrated operation on a plurality of applications distributed on networked stations, the system comprising:

- (a) a plurality of supervisor apparatus units for running an integrated operation on a plurality of applications distributed on networked stations, at least one of said supervisor apparatus units comprising:

- (i) An evaluating unit for receiving and evaluating output from at least two stations, including a first station and at least one other station,
 - (ii) an operating unit for sending selected commands to a first application running on said first station, said commands being selectable according to rules, said rules specifying a dependency of a command to be sent to said first station upon an evaluation of output from at least said other station, and
- (b) a coordinator for coordinating operation of said plurality of supervisor apparatus.

38. The system of claim 37, wherein said coordinator is operable for sending parameters to said supervisor apparatus, for affecting operation of said rules.

39. The system of claim 37, wherein said coordinator is operable for sending sets of rules to said supervisor apparatus, for use by said supervisor apparatus in running integrated operations on a plurality of applications distributed on networked stations.

40. The system of claim 37, wherein said sets of rules are for testing said applications.

41. The system of claim 40, wherein said testing comprises a functional test.

42. The system of claim 40, wherein said testing comprises a regressive test.

43. The system of claim 37, wherein said sets of rules are for testing said integrated operation.

44. The system of claim 43, wherein said testing comprises a functional test.

45. The system of claim 43, wherein said testing comprises a regressive test.

46. The system of claim 37, wherein said coordinator comprises a logging unit for collecting and recording output from at least some of said networked stations.

47. The system of claim 46, wherein said coordinator comprises a report generator, associated with said logging unit, for generating reports based on said collected output.

48. The system of claim 47, wherein said report generator comprises a summarizer for summarizing said collected output.

49. The system of claim 47, wherein said report generator comprises a describer for evaluating and characterizing said collected output.

50. Test apparatus for running on a first station to test an application thereon, said test to be integrated with tests on remotely located other stations networked therewith, the apparatus comprising:

- (a) an operating unit for sending selected commands to said application, said commands being selectable according to rules, said rules specifying a dependency of a command to be sent to said application upon an evaluation of output at least one of said remote stations, and
- (b) An evaluator, associated with said operation unit, for selecting commands to be sent to said application according to an evaluation of outputs received from said remote stations, said evaluation being dependent on said rules, thereby to control flow of said commands locally at said first station in accordance with said outputs received from said at least one remote station.

51. Test apparatus according to claim 50, wherein said first station is a remote station.

52. Test apparatus according to claim 50, wherein said rules comprise synchronization at predetermined synchronization points.

53. Test apparatus according to claim 50, wherein said rules are supplyable to said operating unit by a remote coordinator.

54. Test apparatus according to claim 50, wherein said test comprises functional tests on said application.

55. Test apparatus according to claim 50, wherein said test comprises regressive tests on said application.

56. Test apparatus according to claim 50, wherein said outputs comprise the results of test scripts run by each test application, and wherein said evaluator is operable to freeze running of a respective test script until receipt of a predetermined output from a predetermined other of said applications.

57. Test apparatus according to claim 50, wherein said outputs are the results of test scripts run by each test application, and wherein said evaluator is operable to freeze running of a respective test script until receipt of an

indication that a predetermined other application at a remote station is ready to carry out a given operation.

58. Supervisor method for running an integrated operation on a plurality of applications distributed on networked stations, the method comprising:

- (a) sending selected commands to at least one application of said plurality of applications, said application running on a first station,
- (b) receiving and evaluating output from said at least one application and from at least one other station, and
- (c) selecting commands for sending to said application, said selection being dependent on rules, said rules specifying a dependency of a command to be sent to said first application upon an evaluation of output from said other station.

59. Method according to claim 58, wherein said integrated operation is a test operation.

60. Method according to claim 59, wherein said integrated test comprises functional tests on said applications.

61. Method according to claim 59, wherein said integrated test comprises regressive tests on said application.

62. Method according to claim 59, wherein said distributed applications are test applications operative to test locally installed test subject applications.

63. Method according to claim 62, wherein said distributed applications comprises at least one of a group comprising functional testing ability and regressive testing ability.

64. Method according to claim 58, wherein said rules comprise a synchronization point comprising a requirement for unidirectional temporal dependency between a command on one station and received outputs from said other stations.

65. Method according to claim 58, further comprising utilizing a synchronization point definer to define synchronization points in said integrated operation, said synchronization points being usable at a station to temporally affect operation at said station.

66. Method according to claim 58, further comprising utilizing a synchronization point definer to define a synchronization point in said

integrated operation, said synchronization point being usable at a plurality of said stations to temporally affect operation at a selected ones of said stations.

67. Method according to claim 65, further comprising utilizing said synchronization point definer to define, with said synchronization point, a list of at least one station to use said synchronization point.

68. Method according to claim 65, further comprising utilizing said synchronization point definer to define, with said synchronization point, a list of at least one station to respond thereto in a first way and a list of at least one station to respond thereto in a second way.

69. Method according to claim 65, further comprising utilizing said synchronization point definer to define, with said synchronization point, a list of at least two events from said evaluation.

70. Method according to claim 69, said further comprising utilizing said synchronization point definer to define, with said synchronization point, a list of at least one station to react to a first of said events and a list of at least one station to react to at least a second of said events.

71. Method according to claim 70, wherein said first event comprises an indication of successful sending of data from a first station and said second

event comprises an indication of successful receipt of said data at a second station.

72. Method according to claim 70, wherein said first event comprises an indication of successful sending of data from a first station and said second event comprises an indication of unsuccessful receipt of said data at a second station.

73. Method according to claim 70 comprising defining, for at least one station, a maximum time delay for waiting for a synchronization event associated with said synchronization point.

74. Method according to claim 73, comprising defining different maximum time delays for different stations.

75. Method according to claim 62, wherein said outputs comprise the results of test scripts run by each test application.

76. Method according to claim 75, further comprising freezing running of a script at a first application until receipt of a predetermined output from a predetermined other of said applications.

77. Method according to claim 75, further comprising freezing running of a script at a first application until receipt of an indication that a predetermined other of said applications is ready to carry out a given operation.

78. Method according to claim 62, comprising informing any one of said stations about occurrence of an event at any other of said stations.

79. Method according to claim 78, comprising including supervisor generated data regarding said occurrence.

80. Method according to claim 78, comprising including station generated data regarding said occurrence.

81. Method according to claim 58, further comprising debugging in accordance with output from at least one of said stations.

82. Testing method for testing an integrated operation running as a plurality of applications distributed on networked stations, the method comprising:

- (a) sending selected commands to at least one application of said plurality of applications, said application running on a first station,

- (b) receiving and evaluating output from said at least one application and from at least one other station,
- (c) selecting commands for sending to said application, said selection being dependent on rules, said rules specifying a dependency of a command to be sent to said first application upon an evaluation of output from said other station,
- (d) comparing said received output to a body of expected output, and
- (e) reporting differences between said received output and said expected output,

thereby testing whether said received output conforms to expectations.

83. Testing method of claim 82, wherein said comparison of said received output to said body of expected output comprises a functional test of said integrated operation.

84. Testing method of claim 82, wherein said comparison of said received output to said body of expected output comprises a regressive test of said integrated operation.

85. Testing method of claim 82, wherein said comparison of said received output to said body of expected output comprises a functional test of said at least one application.

86. Testing method of claim 82, wherein said comparison of said received output to said body of expected output comprises a regressive test of said at least one application.